

Work Order ID 67352

Wednesday, March 16, 2011 11:30:00 AM

Page 1

Item ID: D212-664-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Fwd

Start Date: 3/16/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D212-664-141

Rev D

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

Subtotal

11-4-4

110

Pick Kit

0.00



Packaging

Packaging

Memo

0.00

Packaging

DP

11-3-23

120

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

DP

11-3-23

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 67352

Wednesday, March 16, 2011 11:30:01 AM

Page 2

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC15- Crosstube Dimensional Check

0.00

Sul03/23



QC

Memo

0.00

Quality Control

140

Crosstubes

0.00



Crosstubes

Memo

0.00

Crosstubes

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549, using drill table DT8577, set-up towers in hole #7 as per QSI 10

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

SMD
11-03-24

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Chemical Conversion Coat within 24 hours of bending and drilling

SAD
11-03-285

①

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Sub 03/28

②

170

Outsource process - NDT per QSI038 4.1

0.00



Outsource2

Memo

0.00

Outsource process - NDT

Liquid Penetrant Inspection as per QSI 038
Issue P/O: 13734
LPI as per ASTM 1417 Level 2
Attach copy of NDT results to work order

CY 11/03/29①

W/O:		WORK ORDER CHANGES						
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Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180



Packaging

Receive & Inspect for Damage & Mat'l Certs
Packaging

0.00

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

PO 11/3/29 (1)

190



QC

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Quality Control

Inspect for damage & ensure results are as per Dwg D212-664-141

ET 11-03-29

W/O:		WORK ORDER CHANGES						
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Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

Spray Painting per QSI005 4.2

0.00



SprayPaint

Memo

0.00

SprayPaint

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 10 00

Fininsh Time: 11 00

PAINT:

Start Time: 3 00

Finish Time: 4 00

45 11-03-29

210

QC14- Inspect Spray Paint

0.00



QC

Memo

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

11 03 30 (1)

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Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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220



Crosstubes

Crosstubes

Crosstubes

Memo

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe
2- Install supports with magnobond as per QSI 015 Adhere for for 12 Hrs
A/R 6398 Magnobond Batch: 46677
3- Torque bolts as per dwg

0.00

0.00

85 11-03-30

230



QC

Quality Control

QC6- Inspect dimensions to drawing

Memo

0.00

0.00

ml 11 04 04 01

240



Packaging

Packaging

Pick Kit

Memo

0.00

0.00

11/4/4sf

W/O:		WORK ORDER CHANGES						
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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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250

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

260

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D212-664-101

270

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

Sulawaty

Ⓚ

Loc 103
RFE

11/4/4

11/4/4

ME

11-04-04

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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NOTE: Date & initial all entries



Wednesday, March 16, 2011 11:30:11 AM

Page 1

[illegible][illegible]**Required Date: 3/25/2011**

Required Qty: 1.00

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS
IPP Rev:F 06-03-29 Remove Coments on Pick List JLM
IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Mfg Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-101TRN		Manufactured	No			110	Each	0.0000	1	1		11-3-23	
													
Crosstube Turning Detail													
D3595-063-450		Manufactured	No			230	Each	73.4590	4	4.210526		11-03-30	
													
RUBBER CUSHION													

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	68.45897368	
53775	5.97897368	
58161	3.56	
59580	0.12	
61465	4.68	
63960	10	
65656	2.12	
<u>67067</u>	42	44
ST415	5	
64171	4	
64300	1	

W/O:		WORK ORDER CHANGES						
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NOTE: Date & initial all entries

Picklist Print

Wednesday, March 16, 2011 11:30:11 AM

Work Order ID: 67352

Parent Item: D212-664-101

Parent Item Name: Crosstube Fwd

Start Date: 3/16/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

MS21920-25

Purchased No

220 Each

88.0000

4 4



Clamp(per MIL-DTL-8783C)



11-03-30

Location	Loc Qty	Loc Code
LG	21	
113281	0	
114759	5	
114901	3	
115278	1	
115849	12	
LG050	42	
116264	42	
ST451	25	
109181	1	
113281	5	
113282	18	
113744	1	

x4

D2893-1

Manufactured No

220 Each

7.0000

2 2



2.75 Support



66698 x2

11-03-30

Location	Loc Qty	Loc Code
LG	7	
63367	7	
Manufactured	240	Each
	29.0000	

1

1

D3428-1

Manufactured No

240 Each

29.0000



Placard



11/4/11 ST

Location	Loc Qty	Loc Code
ST053	29	
63978	5	
66115	12	
66961	12	

1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Picklist Print

Page 3

Wednesday, March 16, 2011 11:30:11 AM

Work Order ID: 67352

Parent Item: D212-664-101

Parent Item Name: Crosstube Fwd

Start Date: 3/16/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

AN6-35A
BOLT

Purchased No 240 Each 94.0000

4 4 11/4/4 SP

Location	Loc Qty	Loc Code
ST343	94	
115698	20	
115742	24	
116528	50	

AN6-36A
Bolt

Purchased No 240 Each 74.0000

4 4 11/4/4 SP

Location	Loc Qty	Loc Code
ST343	74	
115698	30	
115835	1	
116400	13	
117010	30	

MS21042L6
Nut

Purchased No 240 Each 223.0000

6 6 11/4/4 SP

Location	Loc Qty	Loc Code
ST300	223	
111578	4	
116102	19	
116373	100	
116548	100	

AN960JD616
Washer

NAS1149D0663J Purchased No

240 Each 0.0000

18 18 1116209 11/4/4 SP

Wednesday, March 16, 2011 11:30:11 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

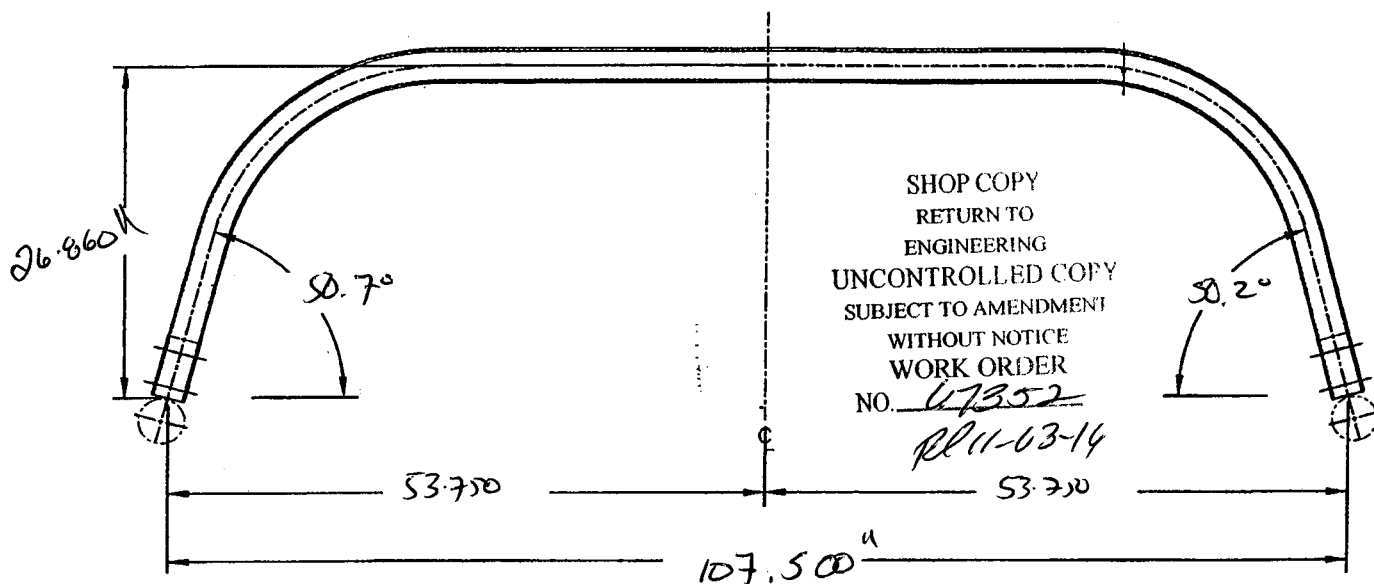
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DART AEROSPACE LTD		Work Order:	<i>67352</i>
Description: Crosstube High Fwd (205/212/412)		Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: D			Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



Comments

QC15 Inspection	<i>8</i>
Date	<i>11/03/23</i>

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	
C	10.04.01	Dwg Rev updated	KJ <i>KA</i>	<i>[Signature]</i>

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Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS
6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF
D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE
SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE
SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR
DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND
MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT
HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 67352
PI 11-03-16

RELEASED
2009-10-29
NY

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>PH</i>	DART AEROSPACE LTD	
DRAWN	<i>RF</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>9</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>15</i>	D212-664-141	SHEET 1 OF 4
APPROVED	<i>10</i>	TITLE	SCALE
DE APPR.	<i>1</i>	XTUBE ASSY (205/212/412 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. WHO IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES						
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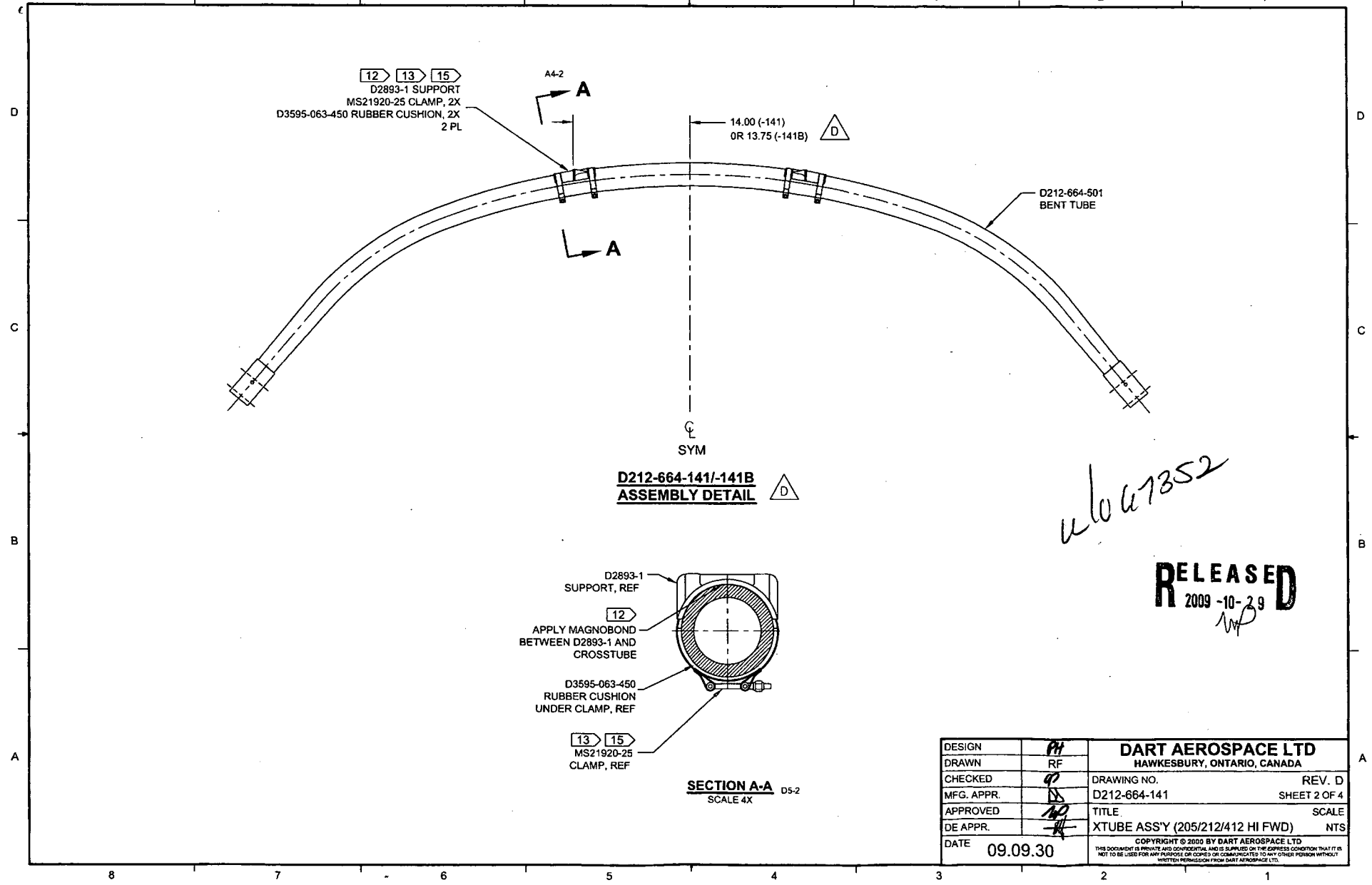
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1



u1067352

RELEASED
2009-10-29
WJP

DESIGN	<i>PH</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>92</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>NS</i>	D212-664-141	SHEET 2 OF 4
APPROVED	<i>NS</i>	TITLE	SCALE
DE APPR.	<i>NS</i>	XTUBE ASS'Y (205/212/412 HI FWD)	NTS
DATE	09.09.30	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

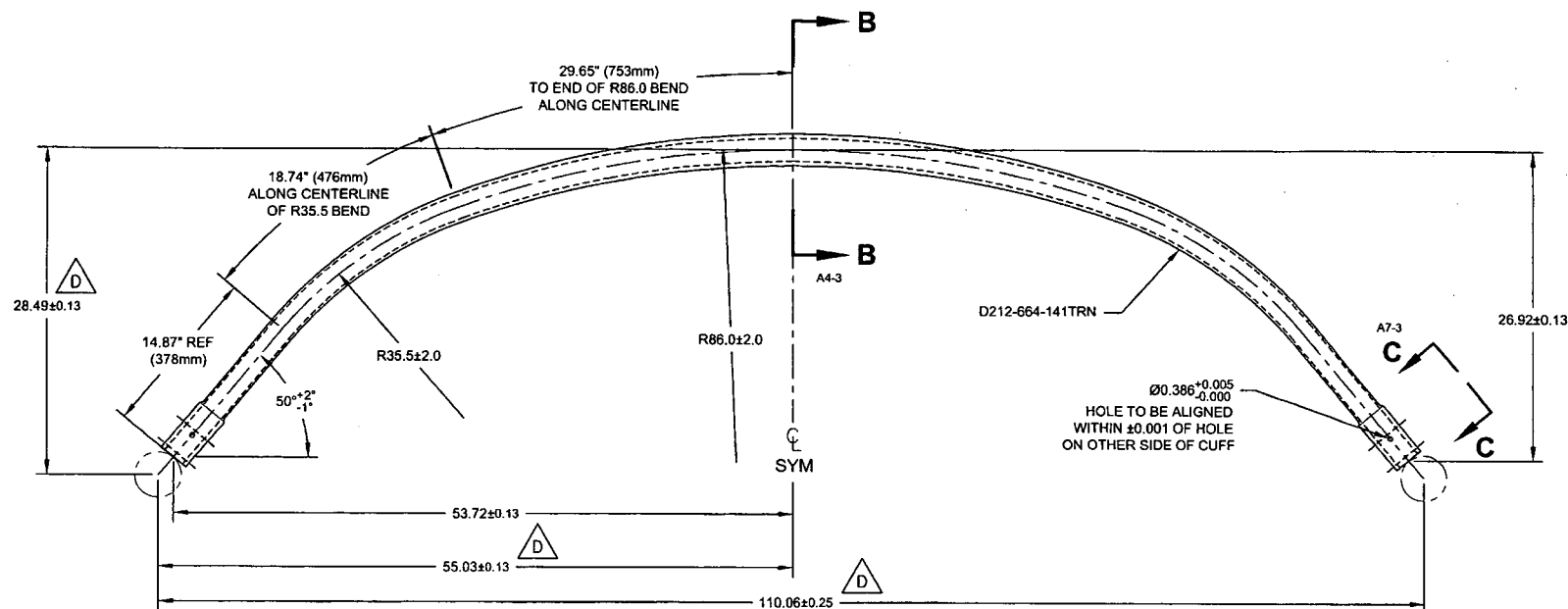
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

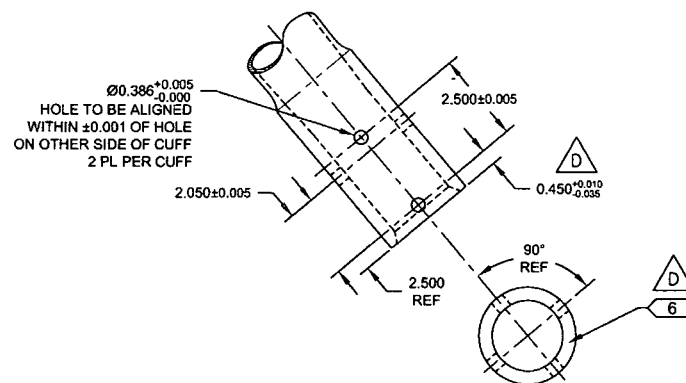


D212-664-501
BENDING AND DRILLING DETAIL

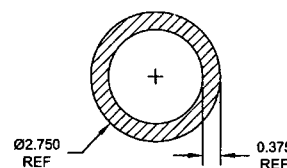


w/b 67352

RELEASED
2009-10-29



VIEW C-C: CUFF DETAIL C2-3
SCALE 3X



SECTION B-B C4-3
SCALE 4X

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9	DRAWING NO.	REV. D
MFG. APPR.	10	D212-664-141	SHEET 3 OF 4
APPROVED	10	TITLE	SCALE
DE APPR.	10	XTUBE ASSY (205/212/412 HI FWD)	NTS
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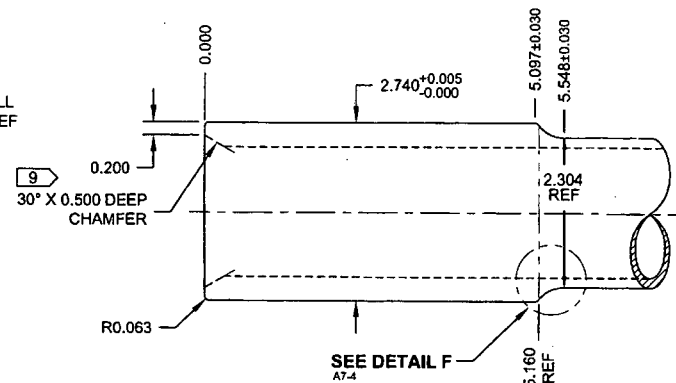
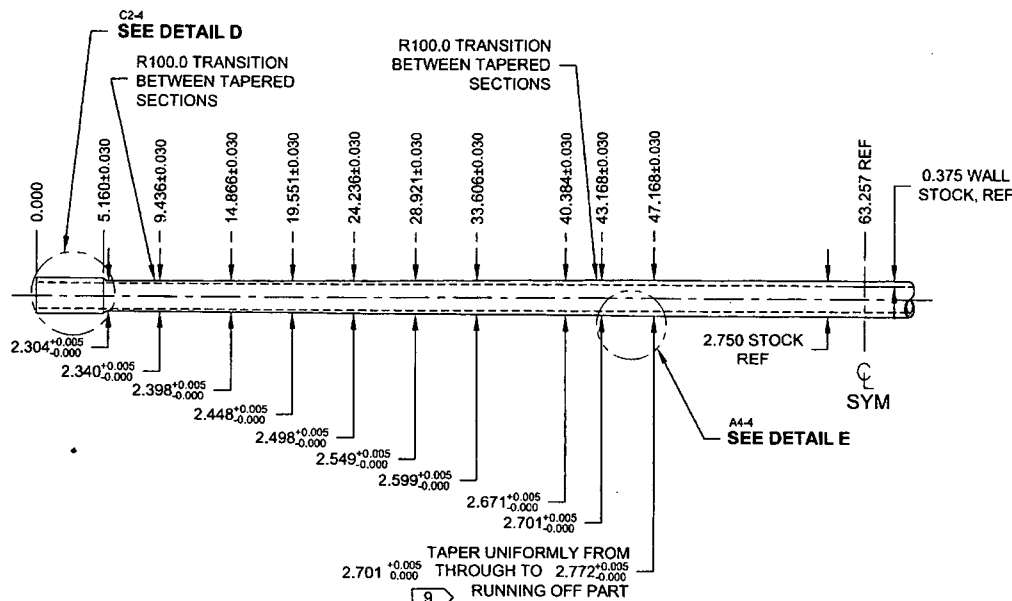
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

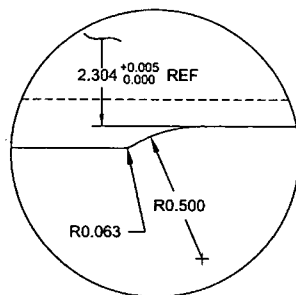
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

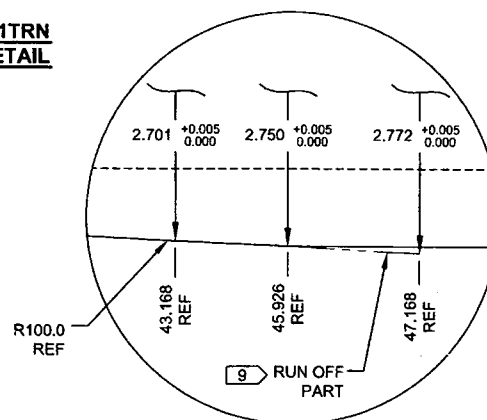


DETAIL D:
 CROSSTUBE CUFF
 SCALE 5X



DETAIL F:
 CUFF TRANSITION
 SCALE 10X

D212-664-141TRN
 TURNING DETAIL



DETAIL E:
 TAPER RUN-OFF
 NOT TO SCALE

w/o 67352

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 2009-10-29

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	92	DRAWING NO.	REV. D
MFG. APPR.	10	D212-664-141	SHEET 4 OF 4
APPROVED	10	TITLE	SCALE
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO13734

Purchase Order Date 3/29/2011

PO Print Date 3/29/2011

Page Number 1 of 2

Order From :
ACUREN
2190 SPEERS ROAD
OAKVILLE, ON L6L 2X8
CA

VC-ACU002

Contact Name
Vendor Phone 613 931 1261
Vendor Fax 613 931 2777
Vendor Account Nbr

Buyer Chantal Lavoie
Requisition Nbr
Tax Resale Nbr 10127-2607
Terms Net 30
Currency CAD
FOB Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

PAID
03/31/11

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	62181	D3691-1 STUD	3/29/2011 Yes	11.00	Yours ppd	\$7.7272	\$85.00
		Special Inst:	LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2				
2	67351	D212-664-101 CROSSTUBE	3/29/2011 Yes	1.00	Yours ppd	\$85.0000	\$85.00
		Special Inst:	AS ABOVE				
3	67352	D212-664-101 CROSSTUBE	3/29/2011 Yes	1.00	Yours ppd	\$85.0000	\$85.00
		Special Inst:	AS ABOVE				

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 3/29/2011



LIQUID PENETRANT TEST REPORT

P- 122330

PAGE 1 OF 2

CLIENT DART Aerospace DATE March 29-2011 TIME AM ☒ PM ☐
ATTENTION LINDA LACELLE ACUREN JOB NO. 188-11-02066
ADDRESS 1270 ABERDEEN ST. POWO NO. 13734
HAWKESBURY, ON. WORK LOCATION HAWKESBURY
KGA 1KT ACCEPTANCE STD. ASTM 1417/05-038 REV./DATE 2005
PROJECT F.P.I. ON CROSS TUBES
ITEM(S) EXAMINED (7)

JOB DESCRIPTION WET FLUORESCENT LIQUID PENETRANT INSPECTION PROCEDURE NO. LT 002 REV./DATE 2008 TECHNIQUE NO. LT 002 REV./DATE 2008
PART NO. — MATERIAL ALUMINE ALUMINUM THICKNESS VARIOUS
SCOPE CARRIED OUT ON 100% EXTERNAL SURFACE

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 16459 ☒ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2067 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LABNO
DEVELOPER SK052 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098806 CAL DUE DATE oct-19
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY 2011

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

ITEM	DESCRIPTION	STATUS	REMARKS
1	CrossTUBE:W.O. 67235	✓	INDICATIONS TO BE REMOVED
1	CrossTUBE:W.O. 67351	✓	
1	CrossTUBE:W.O. 67352	✓	AT 11-03-29
1	CrossTUBE:W.O. 67238	✓	
1	CrossTUBE:W.O. 67237	✓	INDICATIONS TO BE REMOVED
1	CrossTUBE:W.O. 67236	✓	
1	CrossTUBE:W.O. 67433	✓	INDICATIONS TO BE REMOVED

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE Earl T. Hely DTR # E-63781
TECHNICIAN (SIGNATURE): [Signature] REPORT REVIEWED BY:
NAME (PRINT): Mike Jettins Ton NAME INITIALS
1st TECHNICIAN 2nd TECHNICIAN
CGSB LEVEL 2 SNT LEVEL — CGSB LEVEL — SNT LEVEL —
CGSB REG. No 6606 CGSB REG. No —

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	-101	-201	-203	Part Number	Description
	X			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		X		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			X	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
50	1	1		D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE
NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA
SKIDTUBES.

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Revision: F
Date: 08.09.05